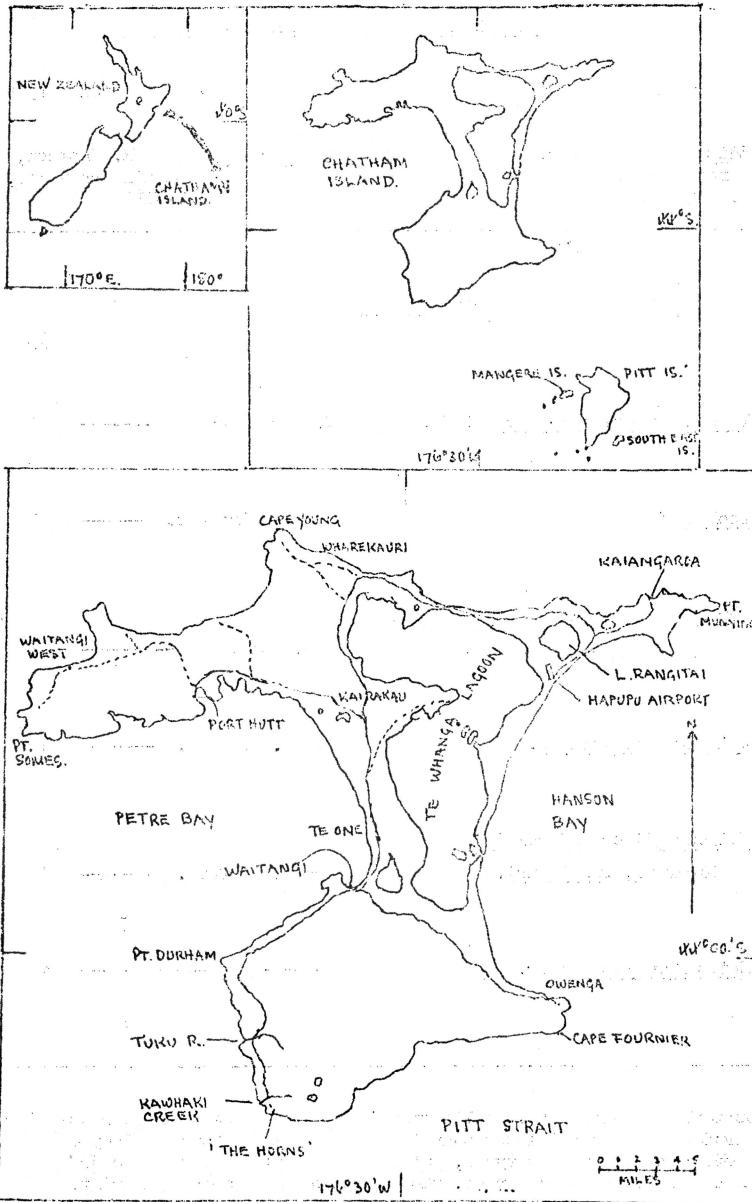


CHATHAM ISLAND LOCATION MAPS.



TO CHATHAM ISLAND - MARCH 1975

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This is a short account of a seven day visit to Chatham Island, with the main object of seeing and recording some of the plants that grow there, with their locations, and to learn a little about the other features of the area. Finally I wish to add my plea for further conservation measures in regard to indigenous flora and fauna.

Grouped around 44 degrees latitude south and 176 degrees longitude west, some 500 miles east of Christchurch, are a number of islands and rocky pinnacles that comprise the Chatham Islands. There are four main islands, namely Chatham Island or Rekohu of 224,000 acres, Pitt Island or Rangiaura of 15,000 acres, South East Island or Rangatira of 640 acres and Mangere Island of about similar size. Both Chatham and Pitt Islands are inhabited whereas now South East Island and Mangere Island are both reservations for flora and fauna.

Population is around 500, with administration and control vested in a Resident Agent, appointed by the Government, and a County Council elected by residents, both centrally situated at Waitangi, the main township. Other settlements are at Te One, a few miles away in the farming community, and at Kaiangaroa, Port Hutt and Owenga, all on the coast. Sheep farming is the main industry with some cattle and fishing for crayfish, blue cod and some paua would come next. Some 110 miles of metal roads exist, mostly in reasonably good order and these are usually being upgraded and extended.

Chatham Island, the largest of the archipelago, is about 35 miles wide by 30 miles deep, narrow in its waist and containing a large tidal lagoon 15 miles long and 5 miles average width. About one fifth of Chatham Island consists of lakes and lagoons, some 49,300 acres, while 12,900 acres are unstable beach and sand dunes. However most of the islands land surface, about 60%, consists of peat and peat soils with the remainder being soils of volcanic, schist, sand and lime origins. Peat areas cover much of the southern tablelands area and also to the north-west and north-east but excluding most coastal strips. On this account most water in rivers, streams and lakes has the colour of treacle. The geological pattern of the island, generally speaking, is as follows:- basaltic rocks to the south and in northern hills, schist around the northern coast, a limestone strip west of Te Whanga lagoon, volcanic ash beds and rock in a broad band below Waitangi to Owenga, and consolidated sands occupying most areas north of Te One but with dune sands near several coastal parts. Most of Chatham Island is flat to rolling country with the land surface varying between sea level and 200 feet above it. Generally speaking, from a line between Waitangi and Owenga, the land gradually rises towards the southern coastal cliffs of 400 - 500 feet above sea level. Some high points exist however such as the solitary, often conical, basalt hills in the north to somewhat similar trig points in the south, with the highest point on the island being Oropuke, 940 feet. Grassed farm areas occupy the mid-west and much of the coastal zones except the central south; moorland fern and heath areas or "clears" as they are locally named (i.e. areas clear of forest) cover almost all the remaining country except the southern tableland forest. Of course some lowland forests do exist but they are sparse, with little or no regeneration on account of browsing stock and opossums.

Such places are at Lake Huro, south-west of Te Whanga lagoon, north central coastal zones, around Kaiangaroa and at Hapupu.

Climatically Chatham Island enjoys relatively mild weather, though breezy. Rainfall is usually under 40" per annum with up to 60" per annum in the south. Winds come mainly from the south-west and north-west with often damaging effects; trees and shelter belts to the west are noticeably bent. Frosts are rare, hail occasional, rain is seldom very heavy or long lasting; droughts are more common. Skies are frequently overcast or clouded. It has been recorded that humidity is high, particularly to the south of the island, however I never experienced it.

My visit to Chatham Island commenced with a flight by 'Safe Air' Bristol freighter from Wellington to Hapupu Airport taking three hours. Watches were advanced three-quarters of an hour on arrival. Apart from the initial part of the flight there was little to see from the plane as we seemed to be flying at 7000 - 8000 feet and above a continuous cloud bank. When we gradually dropped through these clouds we were directly over Cape Young in the N.W. corner of Chatham Island, then traversed the northern white sandy beaches, followed by a large circuit over Te Whanga lagoon, with its kaleidoscope effect of brightly coloured algae, and eventually landed on Hapupu's grassed runway. The airport is almost surrounded by belts of trees, some close at hand, so while waiting for the baggage I wandered over to the fence to inspect some of the species. All were familiar and included the Chatham akeake Olearia traversii, matipo Myrsine chathamica, the karaka or kopi as it is called locally Corynocarpus laevigatus, the hairy-leaved Coprosma chathamica, Hymenanthera chathamica, several poroporo Solanum aviculare, while at ground level were some Carex spp. and vast quantities of a large leaved, adventive nettle, Urtica urens. After boarding the airline bus, we drove north to skirt Lake Rangitai, then west bordering the northern sandhills and patches of lowland forest, finally south through 'clears' along the Te Whanga lagoon to the Kairakau crossroads, Te One settlement and school, then to Waitangi. The 30 odd mile journey had taken a little over one hour.

On the way my eyes had been glued to the bus window as I endeavoured to sort out some of the plants passed and also note the various landmarks and background scenery. Abundant patches of decumbent grey-green sand-daphne Pimelea arenaria continued from Hapupu to the turn south, while the dry peat flats and bog zones seemed covered with stunted bracken, Pteridium aquilinum var. esculentum or Gleichenia dicarpa. Adventive marram grass, Ammophila arenaria, was the dominant plant of most sandhills, and here interspersed with Pimelea, Cyathodes parviflora with its pale green foliage and rush-like clumps of Scirpus nodosus. In some places the large rush Juncus pallidus was also apparent together with groves of kopi, matipo and ake ake, with its greyish trunk and branches often distorted in profile, sometimes dying, uprooted and dead. With sandy areas left behind mingi mingi, Cyathodes robusta, invaded the fern areas together with needle-leaved swamp heath, Dracophyllum paludosum. Among this and often on the grasslands following were large patches of gorse, Ulex europeus, along with plentiful barley grass, Hordeum murinum - both troublesome adventives.

At Waitangi, we soon settled into the hotel fronting the harbour and also hired a landrover which was to take me to many parts of the Island. Hire rates incidentally are \$8 a day plus 15 cents

per mile plus petrol at 18.4 cents per litre (.1.1 cents per litre above N.Z. mainland price). The following morning I rose early determined to check the plants from the hotel to the wharf, half a mile away, and perhaps beyond near the rocks. Orange coloured cliffs of volcanic origin lined the route. Included among the indigenous species I found were the Chatham *ngaio Myoporum laetum* var., poroporo, climbing New Zealand spinach *Tetragonia trigyna*, bidibidi *Acaena anserinifolia*, sea celery *Apium australe*, cordate-leaved bindweed *Calystegia tuguriorum*, the large yellow-fruited *Corokia macrocarpa*, *Haloragis erecta*, Chatham flax *Phormium tenax* var. with broader, drooping leaves of 'brittle' fibre content, *Hebe barkeri* with sturdy oblong leaves, *Asplenium* sp. (*A. flaccidum* agg.), a *Foa* sp.?, kawakawa *Macropiper excelsum* var. *excelsum* with shiny unmarked leaves, matipo, akeake, *Hymenanthera*, and near some rocks the Chatham ice plant *Disphyma papillatum*, *Selliera radicans*, *Salicornia australis* and *Festuca coxii*, a bluish coloured grass. Adventive plants were also in evidence - *Coprosma repens* (from N.Z.), gorse, blackberry *Rubus fruticosus* agg., the African ice plant *Carpobrotus edulis*, honeysuckle *Leycesteria formosa* and boxthorn *Lycium ferocissimum*. In the adjacent sea were bull kelp *Durvillea antarctica* and masses of its close relative *Durvillea caespitosa*, elsewhere found only at the tip of South America.

After breakfast my two companions and I decided to head out for the 'Horns' vicinity along the Waitangi - Tuku Road. This road is mostly within sight of the sea with its changing colour patterns and rocky, spray lashed coast with its incessant swells - past farm pasture lands, gradually climbing until the metal road ceases and becomes more primitive, good only for dry conditions even with four-wheel drive. Only two new tree species were observed until the Tuku-a-Tamatea River, namely the lancewood *Pseudopanax chathamicus* without juvenile form, and the yellow-flowered rautini *Senecio huntii* at Awatotara Creek. This tree fringes the southern forests and is apparently plentiful. Between the two streams just mentioned the track was being upgraded through the bracken, mingimingi, *Blechnum capense* covered slopes, with some stands of familiar trees, until we drove down the steep grassed hillside to the Tuku River below. Here the vehicle was parked while we walked several hundred yards to the coast. The endemic pale green *Cotula potentillina* was abundant, with some *C. coronopifolia*, *Parietaria debilis*, the hardfern *Blechnum durum*, *Asplenium obtusatum* and *A. sp.* (*A. flaccidum* agg.), *Carex trifida?*, *Salicornia*, *Selliera*, sea celery, ice plant and the shore buttercup *Ranunculus acaulis*. Nettle was also prevalent amidst the stones bordering the brown coloured stream and the occasional weka was noticed. Introduced from the South Island, wekas are abundant all over the island and are often hunted for food.

Over the Tuku River bridge, we then climbed steeply to the plateau beyond, passing numerous trees of *Dracophyllum arboreum*, usually with both adult and juvenile foliage combined. Juvenile foliage is rather like the leaves of *D. strictum* whereas adult foliage is much smaller, narrower and rigid. To the east of the grassed plateau was the southern forest while in front was a large patch of bush. We explored briefly to the east through the bracken and stunted *Dicksonia fibrosa*. Bordering the forest many tall tree ferns were observed including mamaku *Cyathea medullaris*, the common wheki *Dicksonia squarrosa* and also ferns *Paesia scaberula*, *Histiopteris incisa*, *Hypolepis distans* and *H. rugosula*. Below one tree fern carrying on its trunk *Farina mucronata* and some *Dracophyllum* seedlings was *Nertera depressa*.

Leaving here we drove further to the west, through gates and fences, then south over undulating pasture land, past numerous sheep and cattle, until we overlooked the large gully containing the Kawhaki Creek with the 'Horns' trig point clearly visible just over a mile away. Clambering down the hillside to the stream below I noticed Lagenophora pumila, several Epilobium spp., Pratia arenaria abundant everywhere, Dichondra repens, Viola cunninghamii, odd ferns and then Gunnera monoica var., the spike rush Eleocharis acuta, Scirpus reticularis and the abundant Cotula potentillina. The familiar coastal herb associations were in plentiful supply with ice plant the dominant species. Virtually a meadow of these plants bordered the stream until it disappeared in a waterfall to the surging sea below with its rocks and swirling bull kelp. A few other coastal plants were noticed such as Samolus repens, Rhagodia triandra and the shore dock Rumex neglectus with coastal ferns in the rock clefts and flax, sedges and Hebes visible on the cliff faces. It was noticeable in this area that a number of small coastal plants reached fairly high altitudes (150 feet) and journeyed inland 50 - 100 metres; it seemed that perhaps the sea laden winds from the south-west may have something to do with this phenomenon.

The total number of indigenous species of the Chatham Islands has been estimated at a little over 300 while adventive species number about 150. I wanted to meet up with as many as possible, so the following day was spent in the Kaiangaroa area. Kaiangaroa is a settlement of fishing folk on the west of a sandy bay, with a rocky coastline on east-west sides. In the sandhills fronting the bay were many plants of the large endemic sow-thistle, yellowish green Embergeria grandifolia together with the sea spurge Euphorbia glauca. Near the settlement itself were many trees and shrubs similar to those seen at Waitangi. Beyond the houses on or near the rocky point, I found my first 'Chatham Island Lily', the famed Myosotidium hortensia growing naturally in soil, close to the sea, and surrounded by paua shells. There were several dozen plants here, one of the few places left on the island where a small colony exists. Previously it has been recorded the species was abundant just above high water mark and surrounding the island, only to be eaten out by animals. Close by were masses of Hebe chathamica, prostrate in the rocks, with a larger leaved species which I took to be Hebe barkeri in its coastal guise. The usual association of coastal plants was present plus a new, rare one - the muttonbird plant Cotula featherstonii, some 45 cm. high, with small, entire, senecio-type leaves and tiny 'cotula' flowers - certainly a unique plant. Obviously the space between the plants and the overhanging rocks behind was a haven for nesting muttonbirds.

During the day I also saw the Chatham speargrass Aciphylla traversii, probably originating on the southern coast, and here growing amidst mingimingi and the abundant Libertia peregrinans. Several hundred yards from this area I understood there were two plants of matagouri, Discaria toumatou, some of the few plants remaining on the island. In cultivation nearby, from plants originating at Little Mangere Island, I found the renamed 'Coxella', lacking the sharp, pungent pointed leaves, Aciphylla dieffenbachii. Both these species are somewhat scarce. Here also was the Chatham nikau palm, Rhopalostylis sapida var.?, with a seemingly different juvenile growth form to the mainland species, and Hebe elliptica var., with deep mauve blooms that flower most of the year, large wide leaves, and originating I believe from the coast nearby. However, even before the year 1900 it was reputed to be scarce on Chatham Island, but more plentiful on Pitt Island in coastal zones. But

the best was yet to come; growing on the bush fringe was a magnificent fern with a short trunk, dark green fronds, scaly along rachis and stipe and almost 100 cm. in length. Numerous smaller plants were nearby, looking somewhat like Polystichum vestitum, but growing only in shade. A seemingly new indigenous fern - perhaps Polystichum sp. (unnamed). I heard later that these plants were natural to this area, and came up after excavations some forty years ago. Of course the place was fenced off from stock.

During the next few days many places of interest were inspected and many more plants seen, both indigenous and adventive. In Awenga bay Hebe barkeri grew on the cliffs and rock faces fronting the sea, plants with widely different leaf forms, one with undersides purple, while nearby the usual small coastal plants grew, with Euphorbia and sand convolvulus Calystegia soldanella in the bay, and climbing spinach, nettle and the endemic Geranium traversii to be seen plentifully in or near the rocks. A walk to the Cape Fournier cliffs, through grassed paddocks, permitted a good view of Pitt Strait with the southern islands of Pitt and Mangere clearly discernable some 15 miles away, also the steep cliffs 400 feet high reaching westwards to Point Green, and where immediately to the fore could be seen growing numerous koromiko and some Mysotidium. Growing in the grass pastures were Helichrysum filicaule, Pratia, Centella uniflora and other small indigenous herbs. On the peat 'clears' between Awenga and Waitangi, adjacent to a swift treacle-coloured creek, I first noticed the large tutu Coriaria arborea var. arborea, several tall Coprosma spp. (unnamed C. propinquia var. martinii), three Coprosma robusta? shrubs, with hairs along the upper leaf midribs, the two endemic Dracophyllums, Gleichenia, bracken and Lycopodium volubile. Blackberry was also present.

To the north of Te Whanga Lagoon the main road passes between coastal sandhills and peat 'clears', sometimes including small lakes, and with sparse lowland bush areas nearby. It was near Lake Kaimaumi that I saw abundant silverweed, Potentilla anserinoides, and the usual Pratia and the swamp growing Clearia semidentata, with deep to light mauve flowers, also Dracophyllum paludosum in abundance, both chewed down by sheep or cattle which roam these flats at will. Flax, sedges, native grasses and small herbs were there too. Near here were seen Carex secta var. tenuicaulis and C. virgata, while in the sandhills I found Coprosma acerosa var. - prostrate, with interlacing branches, and greenish leaves closely pressed to branchlets (plants grown in soil seem to lose this feature). Marram grass surrounded.

Near north-west Te Whanga Lagoon, where Disphyma australe is recorded, many coastal plants may be found, together with limestone rocks, often black shark's teeth of prehistoric days, and in the saline waters mussels, flounder, tiddlers, even jelly-fish. Here also I found the mudwort, Limosella lineata with minute mauve flowers. Slightly south of here, towards Blind Jim's Creek, grows the Chatham kowhai, Sophora microphylla var., fortunately with seed. No small plants were seen for stock have access to these unfenced areas. On a limestone rock face, however, I did find some 'wildings' - Cyathodes, Hebe and Linum monogynum. A visit to a small island in the clear, shallow waters of Lake Rangitai was rewarded with plants of flax, small leaved Coprosma, the jointed rush Leptocarpus similis, Juncus maritimus var. australiensis, Euphorbia, the familiar Cotula and Hierochloe redolens. I was looking for the Chatham toetoe

Cortaderia sp., reported to be here but found no trace. A scarce species virtually destroyed by stock.

This naturally brings one to the subject of conservation. It would seem that before the advent of man most of the island was clothed in forest and the island teemed with countless birds. The Moriori probably arrived in the vicinity of 950 A.D. and lived primitively in the thick coastal forests. The European settled in the early 1800's and the Maori arrived in 1835, by which time cropping, grazing and burning were well established. The resinous Dracophyllums burn easily, as does the thick peat below; fires of this type last for ages and cause untold damage. The introduction of sheep, cattle, horses, wild pigs and opossums soon played havoc on the island too, and this situation is slowly continuing. Unless something is done fairly soon to remedy the situation, little or no regeneration of the existing trees, shrubs and other indigenous plants will take place and the island could become a virtual desert. Only by fencing off various areas from wandering stock and by introducing a measure of opossum control, will some relief be obtained.

A logical area to start would be in the existing southern tableland forests where a considerable area could be reserved. The Government should also encourage every landowner of say twenty acres or more, to play his part by ring fencing smaller areas from stock. If the island contained such reserves of coastal land, lagoon and lake areas, bogs and swamps, tree and forest zones - just an acre or two, or ten acres, on every property then regeneration would be assured. Such sanctuaries of plant and bird life offer so many benefits - let us hope that a move on Chatham Island is made soon.

BOOK REVIEW

"FERNS AND FERN ALLIES OF NEW ZEALAND," by Eric Heath and R.J. Chinnock
(A Reed Book, \$4.95.)

Members will be interested to know that a new book on ferns and fern allies has recently been published. It is a book of particular interest to the field botanist. In all, eighty-eight species of ferns and eighteen species of fern allies are described and beautifully figured in the excellent coloured illustrations by Eric Heath. These high quality illustrations should be of great assistance to collectors, making for a quick recognition of species. Mr Chinnock's descriptions are clear and also brief, since the illustrations tell us so much.

The book is prefixed by a brief and lucid explanation of technical terms and a short account of the fern life cycle is also included. A point might be mentioned here. While it is true that a large number of ferns have heart-shaped prothalli, this is not invariably so. In the Hymenophyllaceae, for instance, the prothalli may be ribbon-